Redescription of the female and Distribution of *Depressaria incognitella* Hannemann, 1990 (Depressariidae)

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Summary. The authors examined 24 specimens of *Depressaria incognitella* Hannemann, 1990, collected in the French, Swiss and Italian Alps and in the Abruzzi. Hitherto only two specimens, a male and a female, had been known. Comparing the new-found females with the female paratype, there appeared to be great differences. The authors show that the female paratype, described by Hannemann, is probably *Depressaria ululana* Rössler, 1866 and that the new females are true *D. incognitella*. They give a new description of the female genitalia and a short description of the imago and the male genitalia, a short differential diagnosis and data about the distribution.

Zusammenfassung. Die Autoren konnten 24 Exemplare von *Depressaria incognitella* Hannemann, 1990 untersuchen, die in den Französchen, Schweizer und Italienischen Alpen sowie in den Abruzzen gefunden wurden. Bisher waren nur ein Männchen und ein Weibchen bekannt. Beim Vergleich der neu gefundenen Weibchen mit dem weiblichen Paratypus zeigten sich grosse Unterschiede. Wir sind der Auffassung, dass der weibliche Paratypus zu einer anderen Art gehört, nämlich zu *Depressaria ululana* Rössler, 1866, und dass die neugefundenen Weibchen tatsächlich das Weibchen von *D. incognitella* darstellen. Eine neue Beschreibung der weiblichen Genitalien, eine kurze Beschreibung der Imago und der männlichen Genitalien, eine Differentialdiagnose und Daten über die Verbreitung werden gegeben.

Résumé. Les auteurs ont eu l'occasion d'étudier 24 exemplaires de *Depressaria incognitella* Hannemann, 1990, pris dans les Alpes françaises, suisses et italiennes, ainsi que dans les Abruzzes. Jusqu'à présent, deux exemplaires seulement étaient connus, un mâle et une femelle. Après comparaison des femelles nouvelles avec le paratype femelle, de grandes différences sont apparues. Les auteurs démontrent que le paratype femelle, décrit par Hannemann, est en réalité la femelle d'une autre espèce, *Depressaria ululana* Rössler, 1866 et que les nouvelles femelles peuvent réellement être attribuées à *D. incognitella*. Ils présentent une nouvelle description de l'armure génitale femelle, une brève description de l'adulte et de l'armure génitale mâle, une diagnose différentielle et un aperçu des données existantes quant à la distribution de cette espèce.

Key words. Lepidoptera, Depressariidae, *Depressaria incoginitella*, identity, distribution, Alps.

Introduction

The genus *Depressaria* Haworth forms a relatively large group of moths which generally are hard to differentiate by external features, but easy by examination of the genitalia. Nevertheless a small number of species are so closely related that diagnosis is difficult even after preparation of the genitalia.

Unlike the allied genus *Agonopterix* most species of *Depressaria* present clear differences in the genitalia, especially in the males. Based on the male genitalia, Hannemann divided the genus into six groups (Hannemann 1953), which he later reduced to four: the *artemisiae-, douglasella-, pastinacella-* and *discipunctella*-groups (Hannemann 1995). The *douglasella*-group is distinguished by the presence of a clavus and a cuiller or clasper.

In this study we prefer to subdivide this latter group in two parts: a subgroup *douglasella* s. str. and a subgroup *albipunctella*. The species of the *douglasella*-subgroup s. str. have an oblong valve and are in particular characterized by the presence of

a band of long, caudally or laterally directed bristles on the inner side of the valve below the costa, reaching from the base of the valve as far as the cuiller. The females all have a more or less triangular ostium with a W-like fold below it and short apophyses anteriores.

The *albipunctella*-subgroup generally has the valve broader and shorter; the species always lack the long band of hairs below the costa. In the females the ostium shows more variation; the apophyses also vary, but as a rule they are longer than in the former group.

To the *douglasella*-subgroup s. str. belong *D. douglasella* Stainton, 1849, *D. sordidatella* Tengström, 1848, *D. pulcherrimella* Stainton, 1849, *D. beckmanni* Heinemann, 1870, *D. nemolella* Svensson, 1982 and the recently described *D. incognitella* Hannemann, 1990. This reduced *douglasella*-group corresponds with 'Artsgruppe 2' of Palm (Palm 1989).

To the *albipunctella*-subgroup belong in Central- and Western-Europe: *D. albipunctella* ([Denis & Schiffermüller], 1775), *D. hoffmanni* Stainton, 1861, *D. olerella* Zeller, 1854 and *D. ululana* Rössler, 1866.

Within the *douglasella*-subgroup s. str. diagnosis in the males mainly depends on the form of the cuiller: forked or unforked, longer or shorter. In the female genitalia the differences between the species may be so slight that in certain cases an exact determination is very difficult.

Many years ago the first author started an investigation of the Depressariidae he had caught in Wallis, Switzerland. He found two males belonging to the *douglasella*-subgroup s. str. with unforked cuiller. At that time only one species with such a cuiller was known, viz. *D. nemolella*; diagnosis was as yet impossible.

Quite independently the second author was working on the Pyralidae, Oecophoridae and Depressariidae caught by Baldizzone in the Aosta valley in the Italian Alps. Among that material he discovered a male of a *Depressaria* species, also from the *douglasella*-subgroup s. str. with straight, unforked cuiller, differing from all other species he was acquainted with. Therefore he sent drawings of the genitalia to some specialists. Prof. Hannemann considered the species to be unknown to him. Having but one specimen the author refrained from describing and naming it and referred to it as a '*Depressaria* sp. n.' (Sauter in Baldizzone 1996).

When we could take note of the description of *D. incognitella* (Hannemann 1990) it was at once clear that our males were conspecific with that species, the differences between the respective drawings being relatively insignificant.

However another problem arose. At the time of the description of Hannemann only two specimens were known, a male and a female. Meanwhile we had made a search in several collections. Investigations in the collections of Dutch colleagues had resulted in the discovery of four more identical males and two females from the French and Swiss Alps. In addition a fine series from the Abruzzi was found in the Löbbecke Museum at Düsseldorf, consisting of four males and two females. Two further males were reported from Wallis and the Aosta valley.

The new problem was in the females. The drawing of the female genitalia in the publication of Hannemann did not agree with the slides of our females. Hence we

decided to make a closer study of the two 'unforked' species *D. nemolella* and *D. incognitella*. Fortunately we were able to examine the typematerial of *D. nemolella* from the museum at Lund and of *D. incognitella* from the museum at Copenhagen.

It became obvious that *D. nemolella* and *D incognitella* are two separate species, differing externally and in the male and probably also in the female genitalia. As to the typematerial of *D. incognitella*, we doubt that the male and female belong to the same taxon. In our opinion the female paratype is a misidentified specimen of *D. ululana*.

Hannemann described *D. incognitella* from a single male and female, caught respectively on 28. and 26.vi.1985 in the French Alps at Guillestre (Dep. Hautes Alpes) (Hannemann 1990).

At that time more material was not available. As the differences in wingdesign between species of this group are minimal, it is difficult to prove with absolute certainty that a given male and female belong to the same taxon if they do not originate from an ex-ovo-breeding. You can only assess the probability.

We have the following arguments in support of our view that the female from Guillestre does not belong to *D. incognitella* and that the females in our series represent the true *incognitella*.

In the original description the only link between the male and the female is that they were caught at the same place and at about the same time. We found three such links (from Ovindoli, Fiesch and Reotier), with the series from Ovindoli and Fiesch each including two females.

More important is the difference in the structure of the genitalia, in particular the form of ostium, ductus bursae and signum and the length of the anterior apophyses. The genitalia of the species in the *douglasella*-subgroup s. str. much resemble one other, both in the males and in the females. The genitalia of the females have a triangular, not very conspicuous ostium with a W-shaped fold, a ductus which is not or scarcely sclerotized, a large rhombic or triangular signum and short apophyses anteriores. They are often difficult to distinguish from each other. The genitalia of the females we found are uniform and show all these characteristics. The female from Guillestre, on the other hand, has a cylindrical, laterally strongly sclerotized ostium, a ductus with a small bulge near the ostium and with a distinct sclerotization in the adjacent one-third of its length, apophyses anteriores which are relatively long and a bursa without a clearly visible signum. Lacking a signum is an unknown feature in the genus. Perhaps a very weak signum is hidden behind the spermatophore, which is visible in the middle of the bursa. (This spermatophore is not shown in Hannemann's drawing). The signum of *D. ululana* is much weaker than those in the *douglasella*-subgroup s. str..

The male genitalia of *D. incognitella* completely fit within the *douglasella*-subgroup, so it is plausible that the female genitalia should do also.

Finally, the distal part of the ductus of the female from Guillestre contains a long, narrow, sclerotized streak. This is most probably the cornutus or part of the cornuti of the male. We found this phenomenon on several occasions in other members of the genus. Now the male of *incognitella* only has very tiny, hardly visible cornuti in the vesica. On the contrary the cornutus of *D. ululana* quite accords with it.

The preceding conclusion makes it necessary to redescribe the female genitalia. As the original description of *D. incognitella* is based on two different taxa we also give a short redescription of the imago and of the male genitalia.

Fig. 1. *Depressaria incognitella*, imago. Female. (Abruzzi)

Depressaria incognitella Hannemann, 1990

Depressaria incognitella Hannemann, 1990: 137–144. Holotype ♂, FRANCE, Hautes Alpes: Guillestre, 28.vi.1985, leg. P. Stadel Nielsen (Museum Copenhagen) (Examined).

Material examined. – *Italy:* 6♂, 2♀, Ovindoli (Abruzzi), 1450 m, 3–13.vii.1959, leg.Groß (slides LM-H-1, LM-H-10, LM-H-20 and LM-H-21, Huisman); ♂, Gran Sasso (Abruzzi), 1400 m , 2.viii.1970, M. S.Franko, leg.Groß (slide LM-H-22, Huisman) (all Löbbecke Museum); ♂, Mont Avic, prati sopra Völla, 1400 m, 27.vii.1994, leg.G. Baldizzone (slide GP 95 Bz 23, Sauter) (coll.Sauter); ♂, Parco Natur. Reg. Alpi Marittime, Entracque, Trinitá, Tetti Prer, ca. 1300m 16.vii.1996 (lux) leg. G. Baldizzone (slide GP 15, det.Sauter) (coll. Baldizzone). *Switzerland:* 3♂, 2♀, Fiesch (Wallis), 1000 m, 14.viii–1.ix.1973, 2♂, 6.vii and 14.vii.1980, leg.K. J. Huisman (slides respectively 1827, 1828, 1829, 1022, 1830, 1019 and 1018, Huisman) (coll. Huisman); ♂, Zeneggen (Wallis), 9.ix.1965, leg. A. Schmidlin (slide GP 4626 Sauter) (coll.Sauter). *France*: ♂, les Vernays (Savoie), 1500 m, 16.vii.1989, leg. J. E. F. Asselbergs (slide 1269 Asselbergs) (coll. Asselbergs); ♂, Reotier (Hautes Alpes), 1000 m, 24.vi.1990, ♀, 25.vi.1990; ♂, 21–24.ix.1994, leg. A. L. Cox (slides AC-H-21, AC-H-20 and AC-H-43, Huisman); ♂, Risoul (Hautes Alpes), 1600 m, 13.vii.1988, leg. A. L. Cox (slide AC-H-24, Huisman) (all coll.Cox).

Adult (Fig. 1). – Head light, greyish. Thorax brownish grey. Patagia dark brown. Labial palpi: second segment on the inner side yellowish grey, on the outer side strongly covered by brown brush-like scales. Third segment dark brown with a yellow apex and a broad yellow ring at one third. Wingspan 16–18 mm. Forewings brown, mixed with darker and lighter scales, which can give it a mottled appearance. In particular the Italian specimens have a faint purple sheen. The indistinct postdiscal fascia is somewhat irregularly bordered in the lower part and is angled at 80–95 degrees. There is no sexual dimorphism.

Male genitalia (Fig. 2). – Valve long, elongated oblique-laterally. Length, measured in the middle of the valve, more than one and a half times the greatest width at the base. Valve with clavus and cuiller. Clavus long, reaching the row of hairs below the costa. Cuiller long, very slightly bent inwards, about half its length extending beyond the costa, unforked, with a rounded tip. The part of the valve distal to the cuiller is small and narrow. This width differs in the various slides, as does the length of the clavus and the extent of the cuiller beyond the costa. This variation may be partly due

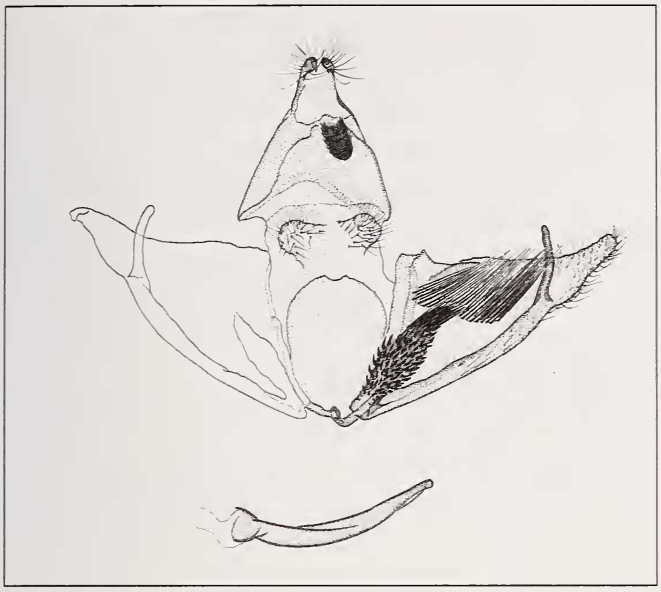

Fig. 2. *Depressaria incognitella*, male genitalia (slide 1019, Huisman)

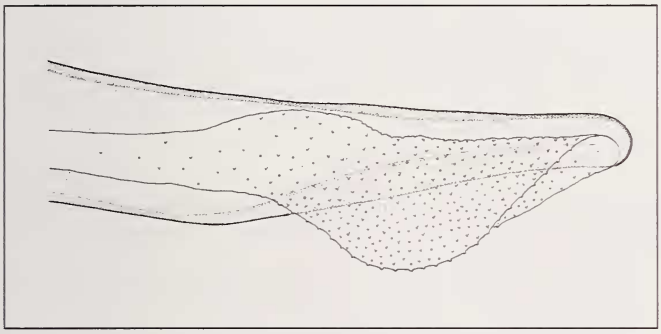

Fig. 3. *Depressaria incognitella*, tip of aedeagus with vesica (enlarged) (slide AC-H-21, Huisman)

to the manner of making the preparations. However, the tip of the valve is never as narrow, not even in the holotype itself, as is suggested in the drawing of Hannemann. There is a row of long hairs below the costa, reaching from the base of the valve to the cuiller. These hairs are directed oblique upwards and nearly always reach above the costa. Gnathos rounded oval. Aedeagus stout, curved, tapering to the blunt tip. Vesica with numerous minute teeth (Fig. 3). These teeth are not always clearly visible.

Female genitalia (Fig. 4). – Genital plate low-trapezoid, with a smooth indention ventrally. The proximal edge is straight, without lumps. Apophyses anteriores short, one third to one quarter of the length of the apophyses posteriores. Ostium triangular with a broad, shallow W-like fold beneath it. Ductus bursae without any sclerotization. Bursa long with a large triangular dentate signum with largest teeth on the longest side.

Differential diagnosis. – The adult of *D. incognitella* most resembles *D. douglasella*. The forewings of most specimens of *D. incognitella* are somewhat paler. The post-discal fascia is slightly more angled. The palpi of *D. douglasella* tend to be

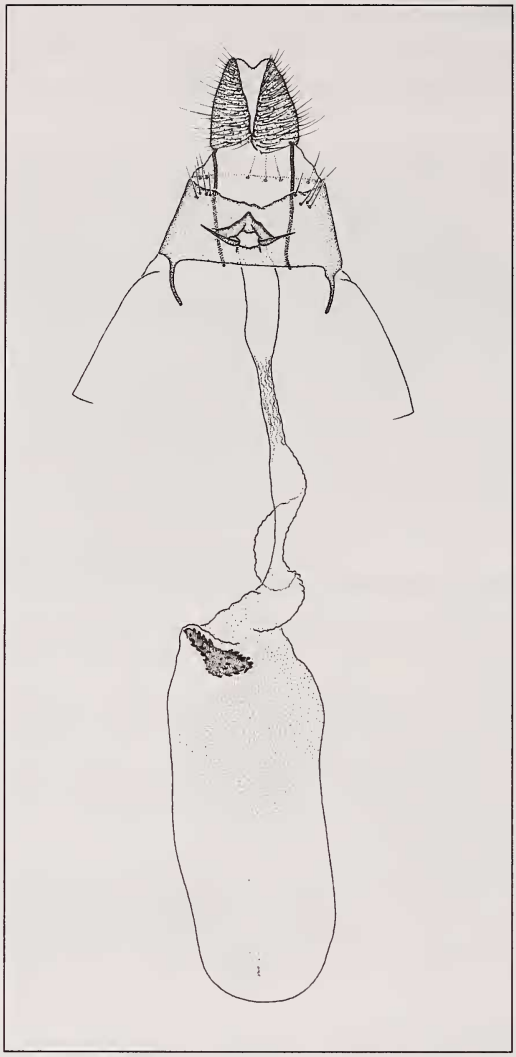

Fig. 4. *Depressaria incognitella*, female genitalia (slide LM-H-21, Huisman)

darker, the second light ring is less distinct. In the male genitalia *D. douglasella* has a shorter and furcate cuiller. In the female genitalia *D. douglasella* has sclerotized semicircular lumps at the base of the apophyses anteriores. Moreover most specimens of *D. douglasella* have some unilateral sclerotization in the distal part of the ductus bursae. In the characteristic male genitalia *D. incognitella* much resembles *D. nemolella*. There are the following points of difference between these two species:

Adult. – *D. nemolella* is larger, 19–22 mm, *D. incognitella* 16–18 mm. The forewings of *D. nemolella* are more uniformly coloured with more distinct black longitudinal streaks before the postdiscal fascia. Third segment of palpi with a broader, yellowish-brown ring.

Male genitalia. – Both species have an unfurcate cuiller, but that of *D. incognitella* is longer and nearly half its length extends beyond the costa, being slightly bent inwards in the distal part. The part of the valve beyond the cuiller is distinctly broader

and somewhat longer in *D. nemolella.* The clavus is longer in *D. incognitella* and at least reaches the row of hairs in the costal half of the valve. Those hairs are in the latter species always directed obliquely upwards and often reach beyond the costa.

Female genitalia. – The differences are small. According to Svensson (1982) the distal edging of the eighth segment of *nemolella* is more indented, the ostium is less obviously triangular, more rounded, the W-like fold is less distinct, the ductus has some sclerotization laterally and the signum seems to be more rhomboidal.

Biology. – As yet nothing is known about the early stages. *D. incognitella* has only been collected in mountainous areas at an altitude of 1000–1600 m, from the end of June till the last third of September.

Distribution. – The species is known from the Alps in France, Switzerland and Italy, from the Abruzzi (Italy). We have also seen a single female from Spain (Benasque, Huesca, 1500 m) which agrees with the other females we have seen, but in view of the difficulty of distinguishing females within this group, we are not entirely confident that it belongs here. So the occurrence in the latter country has to be confirmed by the catch of males.

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